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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,750	08/09/2000	Miguel Philipe Paul Peeters	1073/0H510	5583

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WASHINGTON, DC 20005

EXAMINER
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AHN, SAM K

ART UNIT	PAPER NUMBER
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2637

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/634,750

Applicant(s)

PEETERS, MIGUEL PHILIP  
PAUL

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on amendment, received on 6/28/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6 and 8-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,8-10 and 12-19 is/are rejected.
- 7) ☒ Claim(s) 11 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed on 6/28/04 have been fully considered but they are not persuasive. Applicants argue that the combination of Amrany in view of Mestagh would not produce a desirable characteristic and would not produce results as disclosed in the present application. Applicants argue that in the specification of page 2 describes wherein the teaching of Mestdagh would not produce a desirable outcome. When the incoming signal is "sequence of pulses" with "sequence of peaks", the outcome may be unstable. However, the claims recite processing "a band-limited, over-sampled signal". Assuming that the applicant's argument is correct, the claim does not recite whether the incoming signal comprises one or two pulses or comprises a sequence of pulses. Therefore, one may analyze that the signal to be processed comprises one or two pulses wherein the applicants have confirmed in the specification of page two that it would behave properly. Therefore, Amrany in view of Mestdagh teach all subject matter claimed.

### ***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Great Britain on June 21, 2000. It is noted, however, that applicant has not filed a certified copy of the 0015236.3 application as required by 35 U.S.C. 119(b). *Same notice was given in the previous office action.*

***Claim Objections***

3. Claims 1,2,4,6 and 8-20 are objected to because of the following informalities:

In claims 1,11,12, line 1, delete "band-limited," and insert "band-limited".

In claim 1, line 7, delete "and".

In claim 4, lines 1-2, delete "the clipped signal" and insert "the clipped band-limited over-sampled signal".

In claim 4, line 3, delete "clipped samples." and insert "band-limited over-sampled signal".

In claim 12, line 3, delete "the signal" and insert "the band-limited over-sampled signal".

In claim 12, line 8, delete "the frequency position of the noise" and insert "a frequency position of a noise"

In claim 13, lines 3,4 and 5, respectively, delete "signal" and insert "band-limited over-sampled signal".

In claim 13, line 3, delete "threshold" and insert "given threshold".

In claim 15, line 2, "the signal" and insert "the band-limited over-sampled signal".

In claim 17, line 3, "the signal" and insert "the band-limited over-sampled signal".

In claim 20, line 7, delete "signal" and insert "samples".

In claim 20, line 12, delete "threshold" and insert "given threshold".

Claims 2,6,8-11,14,16,18 and 19 directly or indirectly depend on claim 1 or 12.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,2,4,6,8-10 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. (cited previously) in view of Mestdagh (cited previously).

Regarding claims 1,12 and 13, Amrany teaches a method and a circuit for processing a band-limited, over-sampled signal, multi-carrier DSL signal, comprising circuitry for reducing the amplitude of those portions of the signal having peaks above a threshold value (see 254, 204 in Fig.5 and note abstract, col.2, lines 37-43, col.4, lines 24-30, col.7, line 59 – col.8, line 11). Amrany further teaches the circuitry for reducing comprises a limiter for clipping the signal relative to the threshold (see 254, 204 in Fig.5 and note abstract, col.2, lines 37-43, col.4, lines 24-30, col.7, line 59 – col.8, line 11), a filter for filtering the clipped signal (204) and an arithmetic unit for combining the filtered clipped signal with the signal (256). Amrany although teaches the filter, however, does not teach wherein the filter further functions of controlling the frequency position of the noise associated with the reduction of such peaks.

Mestdagh teaches, in the same field of endeavor, of clipping signals that are above a threshold further comprising a filter (see 19 in Fig.4, and Fig.8B) for

controlling the frequency position of the noise associated with the reduction of such peaks. (note col.2, lines 10-25, col.5, lines 35-58, col.6, lines 32-34)

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Amrany's filter with Mestdagh's and improve by further eliminating noise that may have resulted from clipping. As system designers constantly pursue to further eliminate any unwanted noise, one skilled in the art would be motivated to combine further methods and apparatus to be incorporated into the system, such as the filter taught by Mestdagh, and therefore reduce noise, in this case noise from the clipping, and as a result design a robust transmitter sending only signals with minimal level of noise.

Regarding claim 2, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 1. Mestdagh further teaches wherein the step of controlling the frequency position of the noise is combined at least in part with the step of filtering the clipped band-limited over-sampled signal. (note col.2, lines 10-25, col.5, lines 35-58, col.6, lines 32-34)

Regarding claim 4, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 2. Mestdagh further teaches wherein the step of filtering the clipped signal comprises creating a pulse having a predetermined shape dependent upon the clipped samples. (see Fig.7A, 7B and note col.6, lines 23-29)

Regarding claim 6, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 2. Amrany further teaches wherein the step of subtracting comprises delaying (by 278) the band-limited, over-sampled signal wherein it would have been obvious to one skilled in the art at the time of the invention to delay by an amount corresponding to the time taken to implement the clipping and filtering steps in order to properly subtract at the subtractor, 256, otherwise, the subtractor would not be subtracting the corresponding values.

Regarding claims 8-10, 17 and 18, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 1 or 12. Mestdagh further teaches wherein the circuitry for controlling the frequency position of the noise controls the noise to be positioned outside the frequency band used by the signal. (see Fig.8B and note col.6, lines 29-58) And further, it would have been obvious to one skilled in the art at the time of the invention to control the noise to be placed above the frequency range where the received signals are located, since the system would be receiving signals in a certain frequency range (for example between  $f_2$  and  $f_3$  in Fig.8B), one skilled in the art would be motivated to locate the  $f_3$  to be much higher for the purpose of avoiding the system from mixing the noise with the signal received.

Regarding claim 14, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 13. Amrany further teaches wherein the arithmetic unit is a subtractor (256).

Regarding claim 15, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 13. Amrany further teaches a delay circuit (278) for providing a delayed version of the signal to the arithmetic unit (256).

Regarding claim 16, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 12. Mestdagh further teaches wherein the circuitry for controlling the frequency position of the noise comprises a filter (19 in Fig.4).

Regarding claim 19, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 18. Amrany further teaches an echo canceller (222) where the system is designed to cancel echo, which is a well-known phenomenon in the field such as a DSL transmitter taught by Amrany and Mestdagh. Therefore, it is inherent that Amrany may have been fully aware that the signal contributes and echo to the signal transmitted in the opposite direction.

***Allowable Subject Matter***

5. Claims 11 and 20 would be allowable if rewritten or amended to overcome the claim objections, set forth in this Office action.



6. The following is a statement of reasons for the indication of allowable subject matter:

Present application discloses noise reduction in a DSL transmitter wherein during a clipping step of input signal, the noise created during the clipping step is eliminated by filtering and moving the noise portion to a frequency outside the range of usage. Prior arts, Amrany in combination with Mestdagh teach all subject matter claimed, however, viewed solely or in combination do not teach or suggest wherein the clipped signal is subtracted by the input signal wherein the subtracted signal is inputted to the filter.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Jay Patel**, can be reached at **(703) 308-7728**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

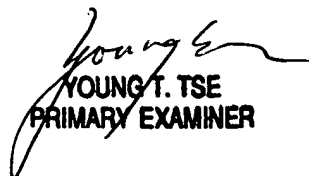
**or faxed to:**

**(703) 872-9306**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn  
8/25/04

  
**YOUNG T. TSE**  
**PRIMARY EXAMINER**